



X-Plain™ *Pneumonia*

Reference Summary

Introduction

Pneumonia is an inflammation and infection of the lungs. Every year, more than 60,000 Americans die of pneumonia. It can affect anybody, but is more dangerous to older adults, infants, and patients with chronic illnesses.

Preventing pneumonia is always better than treating it. If you do get pneumonia, recognizing its symptoms and treating it early offers the best chance for recovery.

This reference summary explains pneumonia. It covers the different types of pneumonia, its causes, diagnosis, and treatment options. The tutorial also discusses how to prevent pneumonia.

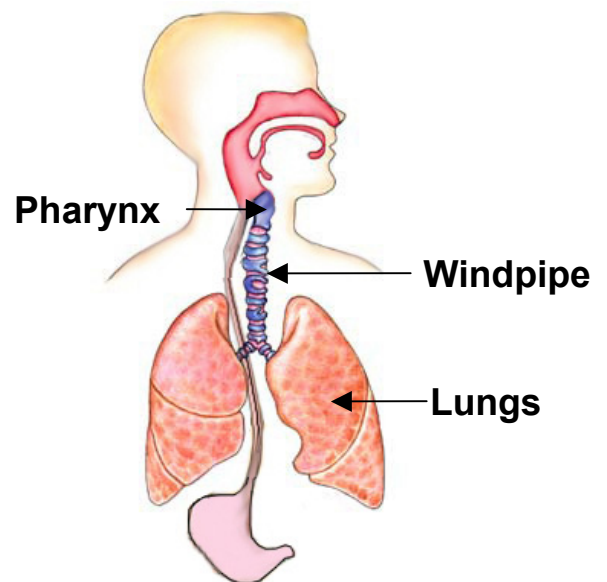
The Lungs

Pneumonia is an infection of the lung. This section reviews the anatomy of the respiratory system and the role of the immune system in preventing lung infections.

The lungs allow us to fill our blood with oxygen. The oxygen we breathe is absorbed into our blood through tissue in the lungs. When we breathe in, the air goes through our mouth and our nose. From there it goes to the larynx and then through the throat also known as the pharynx.

The pharynx divides into two places near the top. It divides into:

- 1) The windpipe at the front, which goes to the lungs. It is also known as trachea.
- 2) The tube at the back, which goes to the stomach. It is known as the esophagus.



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Before swallowing, there is nothing in the throat, the windpipe is open and breathing occurs. When we swallow, the food is pushed into the throat, and the windpipe closes off. Food then slips down back tube leading to the stomach. Because the windpipe is closed, we momentarily stop breathing. Once the food has passed through the throat, the windpipe opens up again and we can breathe again.

From the windpipe, air goes into a number of increasingly smaller tubes called bronchial tubes. These are located on each side of the lungs.

Small balloon-like sacs called alveoli are at the end of the bronchial tubes. The alveoli are very thin. Oxygen goes from the air into the blood through the alveoli. At the same time, carbon dioxide leaves the blood through the alveoli and goes into the lungs where it is breathed out.

The inner lining of the bronchial tubes produce a special substance called mucus.

Mucus helps trap dirt from the air. Mucus is constantly expelled from our lungs. Very small brushes called cilia protect the respiratory tract. The cilia constantly push the mucus out of the lungs. Most of the time it is pushed automatically. If there is too much mucus, it can be coughed out.

When the air we breathe contains germs, our immune system protects the lungs from infection. In fact, the bacteria and viruses that can cause pneumonia are commonly found in the air we breathe, but our body normally keeps them from entering our lungs and causing a problem.

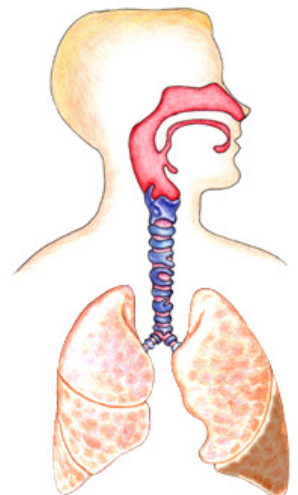
Sometimes germs can get past the defenses of the respiratory system causing pneumonia.

Pneumonia

Pneumonia is an inflammation of the lung. Inflammation is the immune system's normal response to contaminants or injury. Germs such as bacteria or viruses cause inflammation.

When a person has pneumonia, lung tissue can fill with pus and other fluids. This makes it difficult for oxygen in the alveoli to reach the bloodstream. With pneumonia, a person may have difficulty breathing and have a cough and a fever.

How serious pneumonia is depends on several factors. The overall health of the patient as well as the type and extent of



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the pneumonia are important. If you are young and healthy, your pneumonia can almost always be treated successfully. But if you have heart failure, lung ailments, or if you are older, your pneumonia may be harder to cure. You are also more likely to develop complications. Some of these complications can be fatal.

There are more than 50 kinds of pneumonia. Bacteria cause bacterial pneumonias. Viruses cause viral pneumonias. Fungi, mycoplasma and other organisms can cause other types of infectious pneumonia. Mycoplasma is a tiny organism that causes symptoms similar to those of both bacterial and viral infections, although the symptoms appear more gradually and are often milder than are those of other kinds of pneumonia. Mycoplasma pneumonia spreads easily in situations where people gather. It is common in child-care centers and among school children and young adults. Although not bacterial, mycoplasma pneumonia responds well to treatment with the appropriate antibiotics.

Pneumonia can affect one or both lungs. When it affects both lungs, it is sometimes called double pneumonia.

Community-acquired pneumonia refers to pneumonia you acquire from your community, such as at school, work or the gym.

Hospital-acquired pneumonia, or nosocomial pneumonia, is a serious pneumonia acquired at a hospital or a healthcare facility. It usually affects patients who are on a mechanical ventilator, in the intensive care unit, or have a compromised immune system.

Aspiration pneumonia occurs when foreign bodies enter the lungs. An example of this is when stomach contents get into the lungs after vomiting. This most often happens when a person cannot stop the vomit from entering the lungs. Patients with brain injuries or other conditions that affect the swallowing mechanisms are more likely to have vomit or food go down the trachea into the lungs.



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When vomit, food or liquid, other than water, enter the lungs, they cause a chemical reaction that leads to inflammation of the lungs. Often such an inflammation causes bacteria to multiply which worsens the pneumonia. The swallowing reflex ensures that the windpipe is closed when food passes through our throat.

Walking pneumonia refers to pneumonia that is mild enough that you may not even know you have it - basically you may be able to walk around with this type of pneumonia.

Infants and people 65 years of age and older are at increased risk of getting pneumonia. Other people at increased risk include:

- People with immune deficiency diseases such as HIV/AIDS.
- People with chronic illnesses such as cardiovascular disease, emphysema or diabetes.
- People who smoke, or abuse alcohol or drugs.
- People who are exposed to toxic fumes and pollutants.



Symptoms

Signs and symptoms of pneumonia vary greatly, depending on any other conditions you may have and the type of organism causing the infection.

There are many symptoms of pneumonia, and some of them, like a cough or a sore throat, are associated with many other common infections. Often, people get pneumonia after they've had the flu or an upper respiratory tract infection like a cold.

Most people experience a few, but not all, of the following symptoms of pneumonia:

- Fever
- Chills
- Cough



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- Unusually rapid breathing
- Wheezing
- Difficulty breathing

Less common symptoms of pneumonia include:

- Chest or abdominal pain
- Loss of appetite
- Exhaustion
- Vomiting

When bacteria cause pneumonia, sickness happens quickly along with a high fever and difficulty breathing. When a virus causes it, symptoms generally appear more gradually and may be less severe.

When To See A Doctor

If you think you may have pneumonia, don't hesitate to get medical care. A severe case of pneumonia can be life threatening.

See your doctor right away if you have any of these persistent symptoms:

- Cough
- Shortness of breath
- Chest pain that changes as you breathe
- An unexplained fever — especially a fever of 102 F or higher for two or more days along with chills and sweats
- If you suddenly feel worse after a cold or the flu



Make sure to take your child to the pediatrician if you suspect he or she has pneumonia.

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Make sure to also seek medical care immediately if you are an older adult, you're affected by alcoholism, injury, chemotherapy, or you have a suppressed immune system due to a disease or a drug.

Patients with diseases that impair the immune system, such as AIDS, or patients with other chronic illnesses, such as asthma, or patients undergoing cancer therapy or organ transplantation, are particularly vulnerable to pneumonia.

Diagnosis

Your doctor may first suspect that you have pneumonia based on your medical history and a physical exam. During the exam, your doctor will listen to your lungs with a stethoscope to check for abnormal bubbling or cracking sounds and for rumblings that signal the presence of thick liquid. Both these sounds may indicate inflammation caused by an infection.



Your doctor may also give you chest X-rays to make sure you have pneumonia and to find out how severe the infection is as well as its location. If the X-rays aren't clear, you may have a more sophisticated imaging test known as a computerized tomography or CT scan, which takes a series of computer-directed X-rays.

You may also have blood tests to check your white blood cell count or to look for the presence of viruses, bacteria or other organisms. Sometimes your doctor may examine a sample of your phlegm or your blood to help identify the microorganism that's causing your illness.

Rarely, in advanced cases, your doctor may perform a bronchoscopy, a special test where the physician enters the lungs with a special scope. During a bronchoscopy the doctor can help clear pus and phlegm from the bronchiole tubes that cannot otherwise be coughed out. He or she may also be able to get a sample of pus to examine closer. This is done to help your doctor find out the exact cause of the pneumonia.

Once the organism causing the pneumonia is identified, treatment can be targeted specifically against it.

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Treatment

People who have bacterial or atypical pneumonia will probably be given antibiotics to take at home. If you have this type of pneumonia, your doctor will also recommend that you get lots of rest and drink plenty of fluids.

Drinking fluids, especially water, keeps you from becoming dehydrated and also helps loosen mucus in your lungs. There are also antiviral medications that can reduce the severity of certain viral infections if taken in the first 1 to 2 days after symptoms begin.

Take the entire course of any prescribed medication. Stopping prescribed medication too soon can cause your pneumonia to come back and can contribute to the development of antibiotic-resistant bacteria. Follow the instructions that came with your medications and take all the prescribed doses on time.



With proper treatment, most types of pneumonia are cured within a week or two. In severe cases of pneumonia, it may take longer to completely recover. Keep all of your follow-up appointments. Even though you feel better, your lungs may still be infected. It's important to have your doctor monitor your progress.

Some people with severe pneumonia need to be hospitalized to get better. Usually this includes babies, young children, people older than 65, and people with immune system problems.

When pneumonia patients are hospitalized, treatment may include the following:

- IV antibiotics, which are intravenous antibiotics that are delivered through a needle inserted into a vein
- Respiratory therapy that helps the patient breathe

Prevention

The germs that cause many of the different types of pneumonia can be contagious and are spread through coughing and sneezing. You can prevent pneumonia by following good hygiene habits, such as:



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- Cough or sneeze into a tissue.
- Use separate drinking glasses and eating utensils.
- Wash your hands frequently with warm soapy water.

Do not visit sick patients with pneumonia. If you have pneumonia, do not visit older people, babies or sick people

Some types of pneumonia develop when the immune system is weakened. To prevent this type of pneumonia, follow these well-known measures to stay healthy and keep the immune system ready:

- Eat healthy
- Sleep well
- Avoid smoking
- Exercise
- Reduce stress
- Do not drink alcohol in excess
- Get routine child vaccines and flu shots. Flu vaccinations are recommended since pneumonia often occurs as a complication of the flu



Conclusion

Pneumonia is an inflammation and infection of the lung. There are more than 50 types of pneumonia.

If you are young and healthy, your pneumonia can almost always be treated successfully. But if you have heart failure, lung ailments, or if you are older, your pneumonia may be harder to cure. You are also more likely to develop complications, some of which can be fatal.

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See your doctor right away if you have any of these persistent symptoms:

- Cough,
- Shortness of breath,
- Chest pain that changes as you breath,
- An unexplained fever.



Preventing pneumonia is always better than treating it. You can prevent pneumonia by following these good hygiene habits:

- Cough or sneeze into a tissue.
- Use separate drinking glasses and eating utensils.
- Wash your hands frequently with warm soapy water.

Do not visit sick patients with pneumonia. If you have pneumonia, do not visit older people, babies or sick people.

Keep your immune system strong by following these healthy habits:

- Eat healthy
- Sleep well
- Avoid smoking
- Exercise
- Reduce stress
- Avoid excessive alcohol intake



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